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APPALACHIAN MOUNTAIN ADVOCATES

Great Horned Owl © Estate of Roger Tory Peterson.

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September 11, 2015

Mr. William G. Brownlow IV
Manager
Greenthorn, LLC
420 Tobacco Road
London, KY 40741

By Certified Mail – Return Receipt Requested

Re: 60-Day Notice of Intent to File Citizen Suit Under Clean Water Act Section 505(a)(1) for Violation of Terms and Conditions of West Virginia NPDES Permit WV1020366, and 60-Day Notice of Intent to File Citizen Suit Under the Federal Surface Mining Control and Reclamation Act Section 520(a)(1) for Violations of Federal and State Regulations and Permit Conditions of West Virginia Surface Mining Permit S501300

Dear Mr. Brownlow:

The Sierra Club, Ohio Valley Environmental Coalition, and the West Virginia Highlands Conservancy, in accordance with section 505 of the Clean Water Act (the "Act" or the "CWA"), 33 U.S.C. § 1365, and 40 C.F.R. Part 135, hereby notify you that Greenthorn, LLC ("Greenthorn"), has violated, and continues to violate, "an effluent standard or limitation" under Section 505(a)(1)(A) of the Act, 33 U.S.C. § 1365(a)(1)(A), by failing to comply with the terms and conditions of West Virginia/National Pollution Discharge Elimination System ("WV/NPDES") Permit WV1020366. If within sixty days of the postmark of this letter Greenthorn does not bring itself into full compliance with the Act, we intend to file a citizens' suit seeking civil penalties for Greenthorn's ongoing and continuing violations and for an injunction compelling it to come into compliance with the Act.

We further notify you, in accordance with section 505 of the CWA, 33 U.S.C. § 1365, and 40 C.F.R. Part 135, that Greenthorn has violated, and continues to violate "an effluent standard or limitation" under Section 505(a)(1)(A) of the Act, 33 U.S.C. § 1365(a)(1)(A) and (f)(5), by failing to comply with the terms and conditions of a CWA § 401 certification issued by the West Virginia Department of Environmental Protection ("WVDEP"), in conjunction with Greenthorn's Section 404 permit issued by the U.S. Army Corps of Engineers for Amendment 3 to the Surface Mining Permit for the WV-3 Surface Mine. If within sixty days of the postmark of this letter Greenthorn does not bring itself into full compliance with the conditions of the §

401 certification for the Section 404 permit for Valley Fill No. 2, we intend to file a citizens' suit seeking civil penalties for Greenthorn's ongoing and continuing violations and for an injunction compelling it to come into compliance with the Act.

We further notify you, in accordance with section 520 of the federal Surface Mining Control and Reclamation Act ("SMCRA"), 30 U.S.C. § 1270, and 30 C.F.R. § 700.13, that Greenthorn is in ongoing and continuing violation of certain federal and state regulations promulgated under SMCRA and the West Virginia Surface Coal Mining and Reclamation Act ("WVSCRMA" or the "State Act") and certain permit conditions of its West Virginia Surface Mining Permit S501300 as a result of its discharges of pollutants into an unnamed tributary (sometimes called Left Fork) of Madison Branch of the Guyandotte River. If, within sixty days, Greenthorn does not bring itself into full compliance with SMCRA, the regulations promulgated under SMCRA and the WVSCMRA, and Surface Mining Permit S501300 identified below, we intend to file a citizens' suit in federal court seeking an injunction compelling Greenthorn to come into compliance with the applicable statutes, regulations, and permits.

I. FACTUAL BACKGROUND

On or about November 3, 2000, WVDEP issued West Virginia Surface Mining Permit No. S501300 to Hannco Energy Corporation for the WV-3 Surface Mine in Logan County, West Virginia. On or about August 25, 2003, WVDEP transferred that permit to Appalachian Fuels, LLC. WVDEP renewed Surface Mining Permit No. S501300 in 2006 and again in 2011. On or about January 10, 2012, WVDEP approved a transfer of the mining permit from Appalachian Fuels, LLC, to Greenthorn. The permit remains in effect today.

Among the surface mining activities authorized by Surface Mining Permit No. S501300 is the construction and/or expansion of Valley Fill No. 2 in the headwaters of an unnamed tributary (sometimes called Left Fork) of Madison Branch of the Guyandotte River. Greenthorn's predecessor sought and obtained a permit under Section 404 of the CWA from the Corps to expand Valley Fill No. 2 in 2005. On April 28, 2005, WVDEP issued a certification under Section 401 of the CWA for that Section 404 authorization, that included certain terms and conditions. WVDEP approved Amendment 3 to S501300, which authorized the expansion of Valley Fill No. 2, on December 20, 2007. Effluent from Valley Fill No. 2 is discharged into the unnamed tributary of Madison Branch through Outlet 003, regulated by WV/NPDES Permit WV1020366.

WVDEP issued WV/NPDES Permit No. WV1020366 on November 30, 2000, to Hannco Energy Corporation to authorize discharges from the WV-3 Surface Mine. On or about December 11, 2003, WVDEP transferred WV/NPDES Permit WV1020366 to Appalachian Fuels, LLC. The permit was reissued in 2006 and 2012, and WVDEP transferred the permit to Greenthorn on or about September 26, 2012. The permit remains in effect. The permit regulates discharges from the WV-3 Surface Mine, including Outlet 003. It also requires instream monitoring of concentrations of several pollutants in Madison Branch at a sampling location known as "DSMDB." The 2012 Reissuance of WV/NPDES Permit WV1020366 added a requirement that the permittee monitor and sample the water quality in the unnamed tributary (sometimes called Left Fork) of Madison Branch into which Outfall 003 discharges and in which Valley Fill No. 2 is constructed. Part C of WV/NPDES Permit WV1020366 incorporates by

reference 47 CSR § 30-5.1.f, which provides that: "The discharge or discharges covered by a WV/NPDES permit are to be of such quality so as not to cause violation of applicable water quality standards adopted by the Department of Environmental Protection, Title 47, Series 2." WVDEP's narrative water quality standards prohibit discharges of "[m]aterials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life" or that cause "significant adverse impacts to the chemical, physical, hydrologic, or biological components of aquatic ecosystems." 47 C.S.R. §§ 2-3.2.e & 2-3.2.i.

The original applicant for Surface Mining Permit S501300 provided baseline water quality data to WVDEP in Section J of the application. Among those data were the following measurements of the total dissolved solids ("TDS"), conductivity, sulfates, iron and manganese at in-stream sampling locations, including DSMDB and in the Left Fork of Madison Branch, prior the commencement of mining operations at the WV-3 Surface Mine:

Sampling Date	Sampling Location	TDS (mg/L)	Conductivity (µS/cm)	Sulfates (mg/L)	Iron (mg/L)	Manganese (mg/L)
January 5, 1999	DSMDB	288	480	206	0.14	0.11
April 3, 1999	DSMDB	204	340	183	0.07	0.02
July 2, 1999	DSMDB	534	540	192	BDL	BDL
March 22, 2000	DSMDB	460	920	133	0.3	0.06
April 4, 2000	DSMDB	152	304	60	0.72	0.07
May 4, 2000	DSMDB				0.30	0.02
June 1, 2000	DSMDB	225	449	255	0.12	0.02
July 4, 2000	DSMDB	310	620	114	0.19	0.02
August 2, 2000	DSMDB	181	361	84	0.20	0.04
September 9, 2000	DSMDB	326	651	140	0.17	0.24
August 31, 2000	Left Fork of Madison Branch	599	1198	397	0.19	0.07

As part of its applications for Amendments 2 and 3 to S501300, Appalachian Fuels submitted additional water quality data to WVDEP for Madison Branch at DSMDB. Among those data were the following measurements of TDS, conductivity, sulfates, iron, manganese, and temperature, collected prior to the expansion of Valley Fill No. 2:

Sampling Date	TDS (mg/L)	Conductivity (µS/cm)	Sulfates (mg/L)	Iron (mg/L)	Manganese (mg/L)	Temperature (C)
January 16, 2003	336	502	105	0.11	BDL	No Reading
April 28, 2003	232	338	116	0.16	0.09	No Reading
July 1, 2003	116	185	55	0.33	0.08	17
August 26, 2003	448	535	225	0.10	0.02	17.9
October 3, 2003	464	661	80	0.6	0.1	10
October 7, 2003	392	697	155	0.1	BDL	17
January 8, 2004	308	439	212	0.34	0.1	4
January 18, 2004	268	405	239	0.19	0.04	6

April 8, 2004	316	462	311	0.1	0.08	10
July 19, 2004	420	611	56	0.35	BDL	22
October 4, 2004	638	554	51	0.13	0.14	14
October 13, 2004	524	615	52	0.07	BDL	12
January 7, 2005	280	308	72	0.25	0.05	8
April 12, 2005	208	405	57	0.3	0.04	No Reading
May 2, 2005	228	331	57	0.28	BDL	No Reading
July 12, 2005	480	512	302	0.09	BDL	No Reading
August 15, 2005	356	512	59	0.11	0.04	24
October 6, 2005	664	778	301	BDL	BDL	20.5
January 16, 2006	232	274	83	0.52	0.11	6.3
April 20, 2006	448	367	111	1.05	0.13	15

In May 2004, in connection with its effort to obtain Section 404 approval from the United States Army Corps of Engineers for the expansion of Valley Fill No. 2, Appalachian Fuels commissioned benthic surveys of the aquatic life in the Left Fork of Madison Branch, in which Valley Fill No. 2 is located. Those surveys occurred at two locations in the Left Fork of Madison Creek: "Above Existing Sediment Pond" and "Below Existing Sediment Pond." Among the data collected during the benthic surveys were the following measurements of conductivity, TDS, sulfates, iron, and manganese:

Sampling Location	Sampling Date	TDS (mg/L)	Conductivity (µS/cm)	Sulfates (mg/L)	Iron (mg/L)	Manganese (mg/L)
Above Existing Sediment Pond	May 14, 2004	646	798.92	380	0.02	BDL
Below Existing Sediment Pond	May 14, 2004	257	419.35	235	2.22	0.10

Appalachian Fuels's consultant determined that the Left Fork of Madison Branch's West Virginia Stream Index ("WVSCI") Score in May 2004 was 73.60 Above the Existing Sediment Pond and 70.26 Below the Existing Sediment Pond. WVDEP considers streams with WVSCI scores above 68 to be biologically unimpaired.

In its application for reissuance of WV/NPDES Permit WV1020366, submitted after the expansion of Valley Fill No. 2 began, Appalachian Fuels collected the following conductivity, sulfates, iron, manganese, and temperature data from the outfall associated with Valley Fill No. 2—Outfall 003 regulated by WV/NPDES Permit WV1020366:

Sampling Location	Sampling Date	Conductivity (µS/cm)	Sulfates (mg/L)	Iron (mg/L)	Fe (mg/L)	Temperature (C)
003	November 12, 2010	1739	148	0.06	0.04	10.8

The reissuance application also included benthic sampling conducted in the Fall of 2011, after the expansion of Valley Fill No. 2 began. That sampling was conducted at three locations:

BS-1 – located in the unnamed tributary of Madison Branch in which Valley Fill No. 2 is constructed,
SBS-1 – upstream in Madison Branch, and
SBS-2 – downstream in Madison Branch.

The benthic sampling resulted in the following conductivity and TDS data:

Sampling Location	Conductivity (µS/cm)	TDS (mg/L)	Temperature (C)
BS-1	1140	797	15.4
SBS-1	383	268	14.8
SBS-2	755	528	15.7

The 2011 benthic sampling revealed that the WVSCI score in the Left Fork of Madison Branch (BS-1) was 58.01, that the WVSCI score upstream in Madison Branch (SBS-1) was 56.91, and that the WVSCI score downstream in Madison Branch (SBS-2) was 57.14.

Greenthorn commissioned an additional benthic survey in 2013 under the terms of WV/NPDES Permit WV1020366, and submitted the results of that survey to WVDEP. The 2013 benthic survey occurred at the same locations as the 2011 survey described above. The 2013 benthic sampling resulted in the following conductivity and temperature data:

Sampling Location	Conductivity (µS/cm)	Temperature (Degrees Celsius)
BS-1	1234	16.1
SBS-1	418	14.1
SBS-2	955	15.2

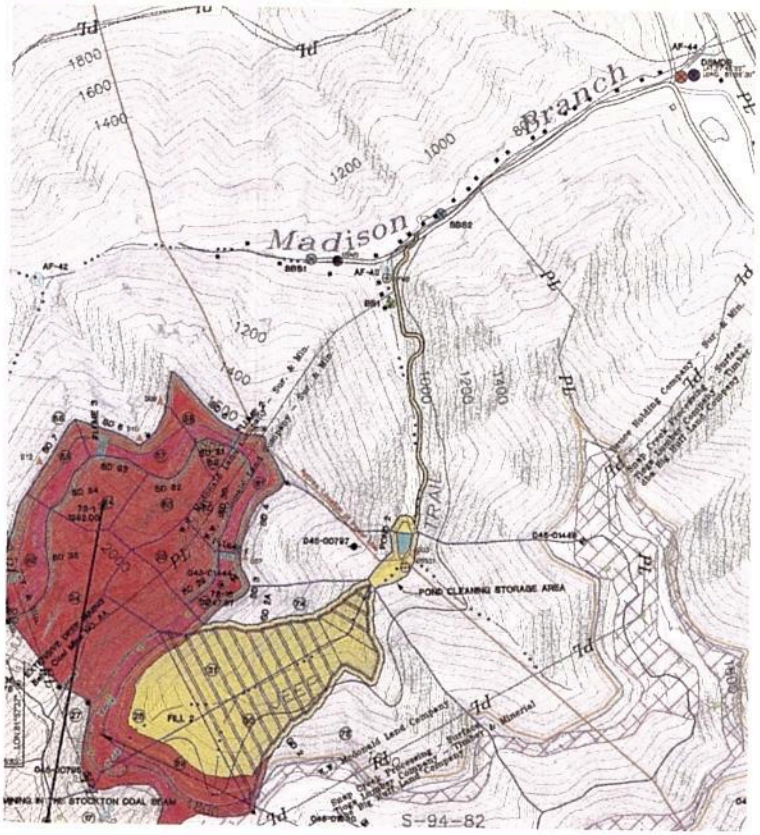
The 2013 benthic sampling revealed that the WVSCI score in the Left Fork of Madison Branch (BS-1) was 61.74, that WVSCI score upstream in Madison Branch (SBS-1) was 65.95, and that the WVSCI score downstream in Madison Branch (SBS-2) was 54.36.

In May 2013, Greenthorn began reporting the concentrations of TDS, sulfates, calcium, magnesium, and the specific conductance that it measures in the Left Fork of Madison Branch at BAS-1 and in the effluent from Outfall 003 in its discharge monitoring reports ("DMRs") to WVDEP. The following table sets out the measurements of calcium, magnesium, conductivity, sulfates, TDS, iron, and manganese that Greenthorn has reported since that time:

Reporting Month	Sampling Location	Calcium (mg/L)		Magnesium (mg/L)		Conductivity (µS/cm)		Sulfates (mg/L)		TDS (mg/L)	
		Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
May 2013	003	32.1	32.4	27.9	35.2	413	443	71	83	325	363
June 2013	003	70.5	89.6	104	140	960	1308	141	211	919	1291
July 2013	003	41	49.4	25.2	33.2	505	586	50	70	331	396
August 2013	003	106	106	187	190	1378	1413	256	284	1227	1266
July 2014	003	121	122	183	190	1633	1640	149	227	1144	1189
August	003	91.4	96	117	123	1178	1212	103	105	918	963

2014											
September 2014	003	107	121	160	187	1348	1488	190	252	1143	1331
October 2014	003	80.2	88.7	109	128	1016	1132	86	95	857	1015
November 2014	003	81.7	81.8	117	118	1061	1162	52	71	871	1011
December 2014	003	70.1	70.1	95.7	96.1	836	866	118	168	634	640
January 2015	003	66.1	67.4	91.1	96.1	803	817	64	69	680	722
February 2015	003	60.0	61.6	83.5	84.4	774	797	78	89	535	537
March 2015	003	66	70	84	91.2	777	935	103	107	645	703
April 2015	003	47.8	55.9	63.0	69.8	638	711	104	116	486	558
May 2015	003	101	110	141	165	1196	1298	86	86	973	1113
June 2015	003	91.3	103	126	149	1215	1362	90	115	967	1128
June 2013	BAS-1	66.3	70.1	93.4	96.8	864	959	138	166	781	887
July 2013	BAS-1	43	60.5	28.4	45.2	507	675	54	83	362	526
August 2013	BAS-1	82.4	82.6	125	126	1114	1126	207	225	940	970
July 2014	BAS-1	87.4	91.9	111	118	1283	1302	156	238	944	994
August 2014	BAS-1	79.8	88.3	95.8	106	1038	1120	93	94	744	755
September 2014	BAS-1	88	105	127	164	1196	1466	240	367	1043	1347
October 2014	BAS-1	79.7	90.5	108	130	1009	1121	99	114	836	1000
November 2014	BAS-1	59.8	68.5	83.6	99.8	853	922	46	48	638	735
December 2014	BAS-1	69.9	71.3	95.1	97.6	868	903	131	155	675	741
January 2015	BAS-1	51.6	52.8	65.9	66	683	696	125	150	474	505
February 2015	BAS-1	60.9	61.9	85	85.2	765	781	100	105	545	560
March 2015	BAS-1	61.6	67.8	75.8	85.1	709	786	119	130	560	650
April 2015	BAS-1	32.1	41.8	39.6	56.6	425	560	54	65	287	383
May 2015	BAS-1	100	113	140	170	1215	1325	79	100	937	997
June 2015	BAS-1	109	113	149	152	1364	1370	141	190	1195	1250

The relevant valley fill, outfall, and instream monitoring points are shown on the map below:



In 2011, EPA scientists summarized the existing science connecting conductivity and biological degradation in an EPA report entitled, "A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams." That report, which was peer-reviewed by top scientists on EPA's Science Advisory Board, used EPA's standard method for deriving water quality criteria to derive a conductivity benchmark of 300 µS/cm. Id. at xiv-xv. According to the species sensitivity distribution in the benchmark, on average, five percent of species are lost when conductivity rises to 295 µS/cm, over 50% are lost at 2000 µS/cm, and close to 60% are lost at 3000 µS/cm. Id. at 18. EPA considered potential confounding factors, including habitat, temperature, deposited sediments and pH, and concluded that none of them altered the relationship between conductivity and biological decline or the benchmark value of 300 µS/cm. Id. at 41, B-22. EPA found that the loss of aquatic species from increased conductivity was "a severe and clear effect." Id. at A-37. EPA also conducted a detailed causal assessment and concluded that there is a causal relationship between conductivity and stream impairment in West Virginia. Id. at A-39. Finally, EPA's benchmark report analyzed the relationship between the WVSCI biological impairment threshold and conductivity levels, and found that a WVSCI score of 64 (close to the impairment threshold of 68) corresponds to streams with conductivity of about 300 µS/cm on average. Id. at A-36. A statistical analysis included in the benchmark determined that at a conductivity level of 300 µS/cm a stream is 59% likely to be impaired and at 500 µS/cm a stream is 72% likely to be impaired. Id.

Based on the elevated conductivity and concentrations of TDS, sulfates, calcium and magnesium detected by Greenthorn and its predecessors since the expansion of Valley Fill No. 2 began after December 2007, the Sierra Club believes that the ions present in the unnamed tributary (sometimes called Left Fork) of Madison Branch downstream of Outlet 003 are

consistent with those associated with coal mining pollution in this region (Pond et al. 2008; Palmer et al. 2010; Bernhardt and Palmer 2011; Lindberg et al. 2012; Pond et al. 2010; Pond et al. 2012; Pond et al. 2014; Kunz 2013). The ionic mixture of calcium, magnesium, sulfate, and biocarbonate in alkaline mine water causes the loss of aquatic macroinvertebrates in Appalachian areas where surface coal mining is prevalent; it is the mixture of ions that causes the biological impairment (Cormier et al. 2013b; Cormier and Suter 2013). This mixture also has significant adverse effects on fish assemblages (Hitt 2014; Hopkins 2013) and has toxic effects on aquatic life, including mayflies (Kunz 2013; Echols 2010; Kennedy 2004).

Bernhardt et al. (2012) concluded that:

> The extent of surface mining within catchments is highly correlated with the ionic strength and sulfate concentrations of receiving streams. Generalized additive models were used to estimate the amount of watershed mining, stream ionic strength, or sulfate concentrations beyond which biological impairment (based on state biocriteria) is likely. We find this threshold is reached once surface coal mines occupy >5.4% of their contributing watershed area, ionic strength exceeds 308 $\mu S\ cm^{-1}$, or sulfate concentrations exceed 50 $mg\ L^{-1}$.

Greenthorn's WV-3 Surface Mine is a major development activity covering 461.43 acres. The high mining intensity in the affected watersheds and the related discharges from Outlets 003 and Valley Fill No. 2 have caused or materially contributed to biological impairment in the unnamed tributary (sometimes called Left Fork) of Madison Branch of the Guyandotte River since the expansion of Valley Fill No. 2 began in December 2007. There are no other evident sources of ionic pollution into the unnamed tributary (sometimes called Left Fork) of Madison Branch apart from Valley Fill No. 2, and the correlation between the pollutant concentrations and conductivity of the effluent from Outlet 003 and measured at instream monitoring location BAS-1 since May 2013, demonstrate that the drainage from Valley Fill No. 2 is the source of the elevated pollutant concentrations and conductivity and, hence, the cause of the biological impairment in the unnamed tributary (sometimes called Left Fork) of Madison Branch. Because Valley Fill No. 2 was constructed in the headwaters of the unnamed tributary (sometimes called Left Fork) of Madison Branch, flow from Outlet 003 contributes most of the flow to the stream.

Moreover, Outlet 003 discharges on a regular basis. Since June 2010, Greenthorn has not reported a "No Flow" in its DMRs to WVDEP for Outfall 003. The following table summarizes the flow that Greenthorn has reported from Outlet 003 from June 2010 through June 2015, as well as the iron and manganese concentrations in the effluent:

Reporting Period	**Minimum Flow (gpm)**	**Maximum Flow (gpm)**	**Iron (mg/L)**		**Manganese (mg/L)**	
			Avg.	Max.	Avg.	Max.
June 2010	75	90	0.13	0.24	0.01	0.02
July 2010	30	35	0.02	0.02	0.00	0.00
August 2010	No data reported					
September 2010	No data reported					
October 2010	No data reported					
November 2010	25	30	0.14	0.19	0.07	0.07

December 2010	35	60	0.14	0.21	0.06	0.07
January 2011	80	180	0.28	0.41	0.05	0.05
February 2011	130	200	0.31	0.38	0.03	0.06
March 2011	100	145	0.43	0.69	0.02	0.03
April 2011	200	250	0.17	0.24	0.03	0.06
May 2011	125	210	0.1	0.11	0.13	0.19
June 2011	85	110	0.1	0.12	0.04	0.07
July 2011	135	140	0.19	0.21	0.08	0.11
August 2011	100	125	0.16	0.17	0.07	0.09
September 2011	185	190	0.25	0.38	0.10	0.11
October 2011	135	165	0.29	0.33	0.07	0.1
November 2011	185	200	0.43	0.44	0.03	0.06
December 2011	145	190	0.26	0.32	0.05	0.07
January 2012	175	185	0.44	0.44	0.06	0.07
February 2012	150	185	0.20	0.23	0.03	0.05
March 2012	175	200	0.17	0.22	0.03	0.05
April 2012	180	200	0.05	0.1	0.04	0.05
May 2012	150	200	0.34	0.55	0.02	0.04
June 2012	100	150	0.26	0.42	0.05	0.05
July 2012	140	165	<0.05	<0.05	<0.02	<0.02
August 2012	120	180	0.19	0.31	<0.02	<0.02
September 2012	100	165	0.04	0.07	<0.02	<0.02
October 2012	No data reported					
November 2012	No data reported					
December 2012	145	180	<0.05	<0.05	<0.02	<0.02
January 2013	130	190	0.21	0.41	0.02	0.03
February 2013	175	185	<0.05	<0.05	<0.02	<0.02
March 2013	190	200	0.14	0.27	<0.02	<0.02
April 2013	200	200	0.56	0.63	0.04	0.04
May 2013	180	210	0.19	0.28	0.02	0.03
June 2013	125	220	0.16	0.24	0.05	0.06
July 2013	200	200	0.08	0.15	<0.02	<0.02
August 2013	170	200	0.16	0.20	0.07	0.07
September 2013	No data reported					
October 2013	No data reported					
November 2013	No data reported					
December 2013	No data reported					
January 2014	No data reported					
February 2014	No data reported					
March 2014	No data reported					
April 2014	No data reported					
May 2014	No data reported					
June 2014	No data reported					
July 2014	60	65	0.04	0.08	0.06	0.06
August 2014	70	75	0.191	0.231	0.079	0.080

September 2014	100	190	0.106	0.152	0.069	0.072
October 2014	120	706	0.136	0.159	0.056	0.062
November 2014	115	120	0.206	0.226	0.054	0.057
December 2014	110	120	0.212	0.220	0.065	0.066
January 2015	100	120	0.205	0.260	0.05	0.05
February 2015	85	160	0.316	0.461	0.05	0.055
March 2015	130	200	0.295	0.322	0.042	0.051
April 2015	260	300	0.899	1.06	0.043	0.043
May 2015	130	160	0.103	0.110	0.056	0.056
June 2015	105	110	0.284	0.401	<0.020	0.033

In sum, the available evidence shows that, since at least 2010 and as a result of Greenthorn's expansion of Valley Fill No. 2 at the WV-3 Surface Mine, the Left Fork of Madison Branch has had elevated chemical ions, including sulfate, calcium, magnesium, and bicarbonate, measured as increased conductivity, TDS, and sulfates. Moreover, since the expansion of Valley Fill No. 2 began, the Left Fork of Madison Branch has gone from unimpaired to impaired based on its WVSCI scores. Dr. Ryan King of Baylor University conducted a statistical analysis of the relationship between conductivity and WVSCI scores, and concluded that 97% of streams with conductivity greater than 1500 µS/cm—as has been measured in the Left Fork of Madison Branch on at least two occasions since the expansion of Valley Fill No. 2 began—have failing WVSCI scores. (King 2014). Accordingly, Dr. King concluded that "conductivity associated with surface mining consistently and unequivocally is associated with biological impairment, and is close to 100% accurate when conductivity exceeds 1500 µS/cm." Id.

In addition, because of solar heating of the sediment control ponds upstream of Outlet 003, the mine has discharged a pollutant (i.e., heat) that has caused or materially contributed to increased temperature in downstream waters which may be a contributing factor to the observed biological impairment. The mine has also discharged other pollutants from that Outlet (e.g., manganese, iron, and dissolved solids) that degrade the habitat of downstream waters by causing or materially contributing to increased embeddedness of the stream substrate, which may be another contributing factor to biological impairment. These discharges and violations began when the expansion of Valley Fill No. 3 began and are continuing.

II. LEGAL CLAIMS

A. CLEAN WATER ACT VIOLATIONS

Section 301 of the CWA prohibits the discharge of any pollutant by any person, except in compliance with a permit. WV/NPDES Permit WV1020366 allows Greenthorn to discharge specified pollutants into West Virginia's waters. Noncompliance with an NPDES Permit constitutes a violation of the CWA. Sierra Club v. Powellton Coal Co., LLC, 662 F. Supp. 2d 514, 516 (S.D. W. Va. 2009). Citizens may sue any person who violates a term or condition of an NPDES Permit. Id. at 517. Greenthorn's WV/NPDES Permit WV1020366 prohibits discharges that cause or materially contribute to violations of applicable water quality standards. 47 C.S.R. § 30-5.1.f. WVDEP defines its applicable water quality standards to include narrative standards. 47 C.S.R. § 2-3.2. In addition, federal regulations require states to issue NPDES

permits that require compliance with "State narrative criteria for water quality." 40 C.F.R. §§ 122.44(d)(1), 123.25(a)(15).

The permit condition prohibiting discharges that cause or contribute to water quality standards violations is enforceable in a citizen suit. Ohio Valley Envtl. Coalition, Inc. v. Alex Energy, Inc., 12 F. Supp. 3d 844 (S.D. W. Va. 2014); Ohio Valley Envtl. Coalition, Inc. v. Elk Run Coal Co., 24 F. Supp. 3d 532 (S.D. W. Va. 2014); Ohio Valley Envtl. Coalition, Inc. v. CONSOL of Kentucky, Inc., Civ. No. 2:13-cv-5005, 2014 WL 1761938 at *3 (S.D. W. Va. Apr. 30, 2014); Ohio Valley Envtl. Coalition, Inc. v. Fola Coal Co., LLC, Civ. No. 2:12-cv-3750, 2013 WL 6709957 at *21 (S.D. W. Va. Dec. 19, 2013); Ohio Valley Envtl. Coalition, Inc. v. Marfork Coal Co., Inc., 966 F. Supp. 2d 667, 685 (S.D. W. Va. 2013). Moreover, citizens may enforce narrative state water quality standards through this type of permit condition. Elk Run, 24 F. Supp. 3d at 537. See also Northwest Envtl. Advocates v. City of Portland, 56 F.3d 979, 986-988 (9th Cir. 1995); New Manchester Resort & Golf, LLC v. Douglasville Development, LLC, 734 F. Supp.2d 1326, 1336-39 (N.D. Ga. 2010) (allowing citizen enforcement of narrative water quality standard prohibiting water discoloration); Swartz v. Beach, 229 F. Supp.2d 1239, 1270-72 (D. Wyo. 2002) (allowing citizen enforcement of narrative water quality standard prohibiting water degradation that causes a measurable decrease in crop or livestock production). "[S]tate standards, including narrative as opposed to numerical criteria, incorporated into an NPDES permit may be enforced through a citizens' suit." Gill v. LDI, 19 F. Supp. 2d 1188, 1195 (W.D. Wash. 1998).

West Virginia's narrative water quality standard provides that:

> No . . . wastes present in any waters of the state shall cause therein or materially contribute to any of the following conditions thereof: . . .
>
> 3.2.e. Materials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life; . . . and
>
> 3.2.i. Any other condition . . . which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impacts to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed.

47 C.S.R. §§ 2-3.2.e & 2-3.2.i. Thus, the standard is violated if wastes discharged from a mining operation "cause" or "materially contribute" materials "that are harmful . . . or toxic to . . . aquatic life" or that have "significant adverse impacts to . . . biological components of aquatic ecosystems." "Biological monitoring is one method of testing [for] compliance with narrative criteria." American Paper Institute, 996 F.2d 346, 350 (D.C. Cir. 1993).

Based on the baseline conditions described above, the observed levels of TDS, conductivity, sulfates, calcium, and magnesium in the Left Fork of Madison Branch after the expansion of Valley Fill No. 2, and based on the WVSCI scores showing impairment of the Left Fork of Madison Branch after the expansion of Valley Fill No. 2, Sierra Club believes that Greenthorn's discharges into the Left Fork of Madison Branch from Outlet 003 have violated the "harmful . . . to . . . aquatic life" and "significant adverse impact" components of West Virginia's narrative standards. 47 C.S.R. §§ 2-3.2.e & 2-3.2.i. Prior to the expansion of Valley Fill No. 2,

the WVSCI score for the Left Fork of Madison Branch was above 68, the threshold below which a stream is biologically impaired. All of the available results of benthic sampling conducted since the expansion of Valley Fill No. 2 began shows that the Left Fork of Madison Branch is now biologically impaired based on the measured concentrations of sulfates and TDS and the elevated conductivity.

Because Greenthorn's WV-3 Surface Mine is a major development activity in the Left Fork of Madison Branch watershed, and because the Left Fork of Madison Branch is contaminated with discharges from Outlet 003 that contain high levels of ionic pollutants, Greenthorn has caused, or materially contributed to, violations of the narrative state water quality standards, its WV/NPDES permit and the CWA. See Elk Run, supra; Upper Chattahoochee Riverkeeper v. City of Atlanta, 986 F. Supp. 1406, 1427 (N.D. Ga. 1997) (city found liable for violating water quality standard for fecal coliform bacteria because its "discharges correlate generally (although not perfectly) with measurements of fecal coliform bacteria in the receiving streams that are thousands of times higher than they should be" and there was no "other source that is contributing such massive amounts of fecal coliform bacteria to explain the level of fecal coliform bacteria in the receiving streams below" its treatment facilities). Based on the available evidence, and the absence of any corrective measures by Greenthorn since the samples were taken, we believe Greenthorn's violations are ongoing. Greenthorn's violations occurred on every day when there was a measured flow from Outlet 003 because that Outlet contributes most of the flow to the Left Fork of Madison Branch. If Greenthorn does not cease those violations within 60 days, we intend to bring a citizen suit against Greenthorn under Section 505 of the Clean Water Act.

Greenthorn's water quality standards violations described above also place it in violation of the terms and conditions of the Section 401 certification issued by WVDEP for the expansion of Valley Fill No. 2. Before the Corps may issue a Section 404 permit, it must obtain certification from the applicable state that the project will not violate that state's water quality standards. 33 U.S.C. § 1341 (CWA § 401). WVDEP issued such a certification to the Corps for the expansion of Valley Fill No. 2 on April 28, 2005. That certification incorporated by reference certain conditions set out in a General Mitigation Plan Agreement dated April 26, 2005. Those conditions serve as federally enforceable effluent limitations on Greenthorn's discharges from the WV-3 Surface Mine into waters of the United States. 33 U.S.C. § 1365(f)(5).

Greenthorn has violated and is violating three of those conditions at the WV-3 Surface Mine. First, Greenthorn is violating the condition that "[t]he permitee will comply with water quality standards as contained in the West Virginia Code of State Regulations, Requirements Governing Water Quality Standards, Title 46, Series 1." As described above, Greenthorn's discharges and mining activities are causing or materially contributing to chemical and biological impairment of the downstream waters in violation of West Virginia water quality standards set forth at 47 C.S.R. §§ 2-3.2.e & 2-3.2.i.

Second, Greenthorn is violating the condition that provides that "[s]poil materials from the watercourse or onshore operations, including sludge deposits, will not be dumped in the watercourse, or deposited in wetlands or other areas where the deposit may adversely affect the surface or ground waters of the state." The spoil materials from Greenthorn's mining operations

at the WV-3 Surface Mine have adversely affected the surface waters of the state, i.e., the Left Fork of Madison Branch downstream of Valley Fill No. 2, by causing or materially contributing to chemical and biological impairment of that stream and the streams into which it flows, in violation of West Virginia water quality standards set forth at 47 C.S.R. §§ 2-3.2.e & 2-3.2.i.

Third, Greenthorn is violating the condition that provides that "[f]ill is to be clean, non-hazardous and of such composition that it will not adversely affect the biological, chemical or physical properties of the receiving waters." The fill used by Greenthorn in its expansion of Valley Fill No. 2 has adversely affected the biological, chemical, and physical properties of the receiving waters, as evidenced by the fact that the Left Fork of Madison Branch downstream of Valley Fill No. 2 is biologically impaired and violates West Virginia water quality standards set forth at 47 C.S.R. §§ 2-3.2.e & 2-3.2.i.

The CWA authorizes citizens to sue "any person . . . who is alleged to be in violation of . . . an effluent standard or limitation under this chapter." 33 U.S.C. § 1365(a)(1). An "effluent standard or limitation under this chapter" is defined to include "a certification under section 1341 of this title." Id. § 1365(f)(5). A person who violates a condition in a Section 401 certification is therefor in violation of the CWA and subject to a citizen enforcement action under the CWA. Stillwater of Crown Point Homeowners Ass'n, Inc. v. Stiglich, 999 F. Supp. 2d 1111, 1124–25 (N.D. Ind. 2014); N.C. Shellfish Growers Ass'n v. Holly Ridge Associates, LLC, 200 F. Supp. 2d 551, 558 (E.D.N.C. 2001). Based on the available evidence, and the absence of any corrective measures taken by Greenthorn since the expansion of Valley Fill No. 2 began, we believe Greenthorn's violations are ongoing. If Greenthorn does not cease those violations within sixty days, we intend to bring a citizen suit against Greenthorn under Section 505(a)(1) of the CWA seeking civil penalties and injunctive relief.

B. SURFACE MINING VIOLATIONS

Section 520(a)(1) of SMCRA authorizes citizens to commence civil actions against any person alleged to be in violation of rules, orders, or permits issued pursuant to SMCRA. 30 U.S.C. § 1270(a)(1). West Virginia has a federally-approved mining program under SMCRA which is administered by the WVDEP pursuant to the West Virginia Surface Coal Mining Reclamation Act ("WVSCMRA"), W. Va. Code § 22-3-1 through 32a. Powellton, 662 F. Supp. at 518. Violations of a federally-approved state program are enforceable in federal court under SMCRA's citizen suit provision. Molinary v. Powell Mountain Coal Co., Inc., 125 F.3d 231, 237 (4th Cir. 1997). We believe that Greenthorn is in continuous and ongoing violation of the following:

(1) 38 C.S.R. § 2-14.5, promulgated under WVSCMRA;
(2) 30 C.F.R. §§ 816.41(a) and 817.41(a), promulgated under SMCRA;
(3) 30 C.F.R. §§ 816.42 and 817.42, promulgated under SMCRA;
(4) The permit conditions incorporated into West Virginia Surface Mining Permit S501300 by operation of 38 C.S.R. § 2-3.33.c, promulgated under WVSCMRA.

Greenthorn's SMCRA-related violations began at least in the Fall of 2011, when benthic sampling conducted in the Left Fork of Madison Branch revealed that the stream is biologically impaired.

Section 506 of SMCRA prohibits surface coal mining operations without a permit from the Office of Surface Mining Reclamation and Enforcement ("OSMRE") or from an approved state regulatory authority. 30 U.S.C. § 1256. Greenthorn holds mining permit S501300 from WVDEP for its WV-3 Surface Mine. The WVSCMRA provides that "[a]ny permit issued by the director pursuant to this article to conduct surface mining operations shall require that the surface mining operations meet all applicable performance standards of this article and other requirements set forth in legislative rules proposed by the director." W. Va. Code § 22-3-13(a). In turn, WVDEP's regulations under that statute provide that "[t]he permittee shall comply with the terms and conditions of the permit, all applicable performance standards of the Act, and this rule." 38 C.S.R. § 2-3.33.c; Powellton, 662 F. Supp.2d at 518.

The federal performance standards under SMCRA mandate that all discharges from permitted mining operations "be made in compliance with all applicable State and Federal water quality laws and regulations and with the effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 C.F.R. Part 434. 30 C.F.R. §§ 816.42 & 817.42. The State program prescribes a similar standard: "Discharge from areas disturbed by surface mining shall not violate effluent limitations or cause a violation of applicable water quality standards." 38 C.S.R. § 2-14.5.b (emphasis added).

As described above, Greenthorn's discharges from the WV-3 Surface Mine from Outlet 003 into the Left Fork of Madison Branch Creek have caused violations of the narrative water quality standards for protection of aquatic life. Consequently, Greenthorn is in violation of the state and federal performance standards that prohibit mining operations from causing violations of water quality standards.

In addition, Greenthorn's mining operations have resulted in impermissible material damage to the hydrologic balance. The performance standards under WVSMCRA mandate that "[a]ll surface mining and reclamation activities shall be conducted . . . to prevent material damage to the hydrologic balance outside the permit area." 38 C.S.R. § 2-14.5. At a minimum, "material damage" includes violations of water quality standards. Ohio River Valley Environmental Coalition, Inc. v. Castle, Civ. No. 3:00-cv-0058, Memo. Opinion & Order at 12-13 (S.D. W. Va. June 14, 2000). Accordingly, the water quality standards violations described above constitute material damage to the hydrologic balance and are actionable in a SMCRA citizen suit against Greenthorn.

Moreover, Greenthorn has a legal duty to treat its effluent to ensure that it does not violate water quality standards. Federal and State performance standards require that, "[i]f drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet the requirements of this section and § 816.42, the operator shall use and maintain the necessary water-treatment facilities or water quality controls." 30 C.F.R. § 816.41(d)(1); see also 38 C.S.R. § 2-14.5.c ("Adequate facilities shall be installed, operated and maintained using the best technology currently available in accordance with the approved preplan to treat any water discharged from the permit area so that it complies with the requirements of subdivision 14.5.b of this subsection.") The violations identified herein show unequivocally that Greenthorn's existing treatment methods are insufficient to meet that requirement. Thus, the performance standards

require Greenthorn to construct systems that will effectively treat its effluent to levels that comply with all applicable water quality standards.

Finally, Greenthorn's violations of the performance standards that prohibit violations of water quality standards and material damage and that require adequate treatment to avoid such violations are violations of its mining permit S501300. By operation of 38 C.S.R. § 2-33.c, that permit incorporates the performance standards discussed in this letter as terms of the permit itself. Consequently, Greenthorn is violating its SMCRA permit.

III. CONCLUSION

As discussed above, if Greenthorn fails to come into compliance with the Clean Water Act; the terms of WV/NPDES Permit WV1020366; SMCRA; surface mining regulations; and the permit conditions of Surface Mining Permit S501300, we intend to file a citizen suit under section 505(a)(1) of the Clean Water Act seeking civil penalties and injunctive relief, as well as a citizen suit under section 520(a)(1) of SMCRA seeking a court order compelling Greenthorn to come into compliance with the law. Be aware that this notice is sufficient to allow us to sue Greenthorn for any post-notice violations related to the violations described herein. See generally, Public Interest Research Group of N.J., Inc. v. Hercules, Inc., 50 F.3d 1239 (3rd Cir. 1995).

If Greenthorn has taken any steps to eradicate the underlying cause of the violations described above, or if Greenthorn believes that anything in this letter is inaccurate, please let us know. If Greenthorn does not advise us of any remedial steps during the 60-day period, we will assume that no such steps have been taken and that violations are likely to continue. Additionally, we would be happy to meet with Greenthorn or its representatives to attempt to resolve these issues within the 60-day notice period.

Sincerely,

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References

Bernhardt, E. S., B. D. Lutz, R. S. King, A. M. Helton, C. A. Carter, J. P. Fay, D. Campagna, J. Amos. 2012. How many mountains can we mine? Assessing the regional degradation of Central Appalachian rivers by surface coal mining. Environmental Science & Technology 46: 8115–8122.

Cormier, S. M. and G. W. Suter. 2013. A method for deriving water-quality benchmarks using field data. Env. Tox. Chem 32:255-262.

Cormier S.M., Suter, GWII, and Zheng L. 2013a. Derivation of a benchmark for freshwater ionic strength. Environ Toxicol Chem 32:263–271.

Cormier S.M. and G.W. Suter. 2013c. A method for assessing causation of field exposure-response relationships. Environ Toxicol Chem 32:272–276.

Cormier S.M., G.W. Suter, L. Zheng, and G. J. Pond. 2013b. Assessing causation of the extirpation of stream macroinvertebrates. Environmental Science and Technology 32(2): 277-287.

Cormier S., S. P. Wilkes, and L. Zheng. 2013e. Relationship of land use and elevated ionic strength in Appalachian watersheds. Env. Tox. Chem 32:296-303.

Echols, B.S., R.J. Currie, D.S. Cherry. 2010. Preliminary results of lab toxicity tests with the mayfly, Isonychia bicolor for development as a standard test organism for evaluating streams in the Appalachian coalfields of Virginia and West Virginia. Env. Monit. Assessment.

EPA (2011) A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams; EPA/600/R-10/023F; Office of Research and Development, National Center for Environmental Assessment: Washington, DC, 2011. Available online from http:// cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=220171.

Hitt, N.P., and Chambers, D.B. 2014. Temporal changes in taxonomic and functional diversity of fish assemblages downstream from mountaintop mining. Freshwater Science 33(3).

Hopkins, R. L., and J. C. Roush. 2013. Effects of mountaintop mining on fish distributions in central Appalachia. Ecology of Freshwater Fish 22:578–586.

Kennedy, A.J. Cherry, D.S., Currie, R.J. 2004. Evaluation of ecologically relevant bioassays for a lotic system impacted by a coal-mine effluent, using Isonychia. *Environ Monit Assess* 95:37-55.

King, Ryan. 2014. Expert comment on the principle cause of biological impairment in Stillhouse Branch below Fola Surface Mine No. 3, Clay County, West Virginia. (Attached as Exhibit A).

Kunz, Use of Reconstituted Waters to Evaluate Effects of Elevated Major Ions Associated with Mountaintop Coal Mining on Freshwater Invertebrates. 2013. Environmental Toxicology and Chemistry, 32:12, pp. 2826-35.

Lindberg, T. T.; Bernhardt, E. S.; Bier, R.; Helton, A. M.; Merola, R. B.; Vengosh, A.; Di Giulio, R. T. 2012. Cumulative impacts of mountaintop mining on an Appalachian watershed. Proc. Natl. Acad.Sci. U.S.A. 2011, 108 (52), 20929–20934.

Palmer, M. A.; Bernhardt, E. S.; Schlesinger, W. H.; Eshleman, K. N.; Foufoula-Georgiou, E.; Hendryx, M. S.; Lemly, A. D.; Likens, G. E.; Loucks, O. L.; Power, M. E.; White, P. S.; Wilcock, P. R. (2010) Mountaintop Mining Consequences. Science 2010, 327 (5962), 148-149.

Pond, G. J.; Passmore, M. E.; Borsuk, F. A.; Reynolds, L.; Rose, C. J. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. J. North Am. Benthological Soc. 2008, 27(3), 717–737.

Pond, G. 2010. Patterns of Ephemeroptera taxa loss in Appalachian 3 headwater streams (Kentucky, USA) Hydrobiologia. 641: 185–201.

Pond, G. 2012. Biodiversity loss in Appalachian headwater streams: Plecoptera and Trichoptera communities. Hydrobiologia 679: 97-117.

Pond, G.J., J.E. Bailey, B.M. Lowman, and M.H. Whitman. 2013. Calibration and validation of a regionally and seasonally stratified macroinvertebrate index for West Virginia wadeable streams. Environ. Monitoring Assess 185:1515–1540.

Pond, G.J., M.E. Passmore, N.D. Pointon, J.K. Felbinger, C.A. Walker, K.J.G. Krock, J.B. Fulton, and W.L. Nash, Long-term Impacts on Macroinvertebrates Downstream of Reclaimed Mountaintop Mining Valley Fills in Central Appalachia, Env. Mgmt. July 3, 2014 (available online at http://link.springer.com/article/10.1007%2Fs00267-014-0319-6).

Suter, G.W. and S.M. Cormier. 2013. A method for assessing the potential for confounding applied to ionic strength in central Appalachian streams. Environmental Toxicology & Chemistry 32: 288-295.